

Appl. No. 10/709,175
Docket No. 146442/GEM-0120

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended) An electronic assembly comprising:
a first layer having a first interface surface and a plurality of cavities formed in the first interface surface;
a second layer having a second interface surface and a plurality of electrically conductive projections disposed at the second interface surface, wherein the plurality of projections are aligned with and disposed at the plurality of cavities, the second layer comprising a diode array having a plurality of backlit photodiodes in electrical communication with the plurality of projections; and
an electrically conductive connecting material disposed at the plurality of cavities such that the connecting material non-separably connects the plurality of projections to the respective plurality of cavities, each of the plurality of cavities being configured to constrain the connecting material disposed thereat;
wherein the plurality of cavities are formed having a depth d in the first interface surface;
wherein the first interface surface is disposed apart from the second interface surface by a gap g; and
wherein the plurality of projections have a length h that is equal to or less than the sum of the depth d and the gap g, such that the connecting material bridges the distance defined by (d+g-h).

2. (canceled)

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3. (original) The assembly of Claim 1, wherein:
the plurality of projections have a width w equal to or greater than about 100 microns and equal to or less than about 700 microns.

4. (original) The assembly of Claim 3, wherein:
the plurality of projections have a width w equal to about 500 microns.

5. (original) The assembly of Claim 3, wherein:
the pitch of the plurality of projections is equal to or greater than about 1.1 times the width w and equal to or less than about 3 times the width w .

6. (original) The assembly of Claim 5, wherein:
the pitch of the plurality of projections is equal to about 2 times the width w .

7. (original) The assembly of Claim 1, wherein:
the plurality of projections are shaped to mirror the shape of the plurality of cavities.

8. (currently amended) The assembly of Claim 1, wherein:
the first layer comprises a ceramic substrate;
~~the second layer comprises a diode array having a plurality of backlit photodiodes in electrical communication with the plurality of projections; and~~
the connecting material comprises a conductive epoxy, a conductive solder, or any combination comprising at least one of the foregoing materials.

9. (canceled)

10. (original) The assembly of Claim 9, wherein adjacent projections are absent direct electrical communication.

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11. (original) The assembly of Claim 8, wherein:
the assembly comprises a light detector for use in medical diagnostic equipment.

12. (original) The assembly of Claim 8, wherein:
the plurality of photodiodes are spaced on the first layer with an edge spacing
equal to or less than about 100 micrometers.

13. (original) The assembly of Claim 12, wherein:
the plurality of photodiodes are spaced on the first layer with an edge spacing
equal to or less than about 25 micrometers.

14. (original) The assembly of Claim 13, wherein:
the plurality of photodiodes are spaced on the first layer with an edge spacing
equal to about 10 micrometers.

15-34. (canceled)

35. (currently amended) An electronic assembly comprising:
a first layer having a plurality of cavities pockets;
a second layer comprising a diode array having a plurality of backlit photodiodes
in electrical communication with the ~~having~~ a plurality of projections, wherein the
plurality of projections are aligned with and disposed at the plurality of cavities pockets
with a defined distance therebetween; and
an electrically conductive connecting material disposed at the plurality of cavities
pockets such that the plurality of projections are electrically and non-separably bonded to
the respective plurality of cavities pockets via the electrically conductive connecting
material;
wherein the conductive connecting material bridges the defined distance; and

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wherein each of the plurality of pockets are configured to constrain the connecting material disposed thereat.